Web Services

Background

For more than 170 years, the Naval Oceanographic Office (NAVOCEANO) has provided tactical environmental information and services to the U.S. Fleet. NAVOCEANO has served the mission of the warfighter by providing analyses, databases, documentation, tailored products and oceanographic knowledge. A key to this success has been our ability to adapt to meet the dynamic needs of the warfighter.

As the Department of Defense begins transforming to a new net-centric architecture that takes advantage of Web-based technologies, NAVOCEANO is advancing to become fully integrated in FORCEnet by migrating to Web Services. FORCEnet integrates a set of naval capabilities into a networked distributed combat system.

What is Web Service?

A Web Service is a software system designed to support machine-to-machine interaction over the network. It allows the free exchange of data and functionality between Web-based applications and provides data and support to users. The result is faster, more accurate, more consistent information.

Currently, NAVOCEANO provides Web Services providing benefits to the warfighter, developer and data provider. Examples include: Web Services for NAVOCEANO oceanographic models and databases (including OAML); catalog; security; plotting and mapping services.

Warfighter

Current data systems may require a warfighter to visit two or three different sites to get information that still must be processed. Processing may be slowed if the data sets are in different incompatible formats. At the heart of NAVOCEANO Web Services is a robust framework called the Joint Meteorology and Oceanography Data Services Framework (JMDSF).

Through the JMDSF, the warfighter has a single interface that can access all Meteorology and Oceanography (METOC) data and information. This framework allows the warfighter to run a warfighter application that directly accesses required data at run time. Because the warfighter does not have to collect data sets needed to run applications, products can be generated quickly to support the operation's tempo.

Application Developer

The Extensible Markup Language (XML) based tools of the framework handle access to multiple data sets using a single application program interface (API). Having Web Services integrated into the JMDSF allows application developers to reuse different services instead of having to write a new application each time. The JMDSF also provides an extensible toolkit for developers to integrate new support tools. These advantages significantly reduce development time.

Data Provider

The JMDSF allows data providers to use numerous data formats via Web Services. The data provider then does not need to create a multitude of formats to support individual customers. The data provider also no longer needs to develop a user interface for users to extract their data. They only need to create data extraction routines. The JMSDF will handle the data and the interface. This gives the data provider time to focus on data quality and decreases time to market.

Future

A number of enhancements are planned for NAVOCEANO Web Services, including ingest capabilities for near real-time acoustic data in support of Anti-Submarine Warfare and Mine Warfare. A new METOC Product and Services Catalog is in development that will provide discovery, visualization and acquisition of all METOC products and services integrated in the JMDSF. NAVOCEANO Web Services is a valuable tool that will help the warfighter get the answer when and where it is needed.